

Define the variables, then write a system of two equations with two unknowns and solve for the requested information.

- 1) A number is 12 less than a third of another number. Their sum is 56. What are the two numbers?

$$\begin{aligned} a + b &= 56 \\ a &= \frac{1}{3}b - 12 \end{aligned}$$

$$\begin{aligned} \frac{1}{3}b - 12 + b &= 56 \\ \frac{4}{3}b - 12 &= 56 \\ \frac{4}{3}b &= 68 \\ b &= 51 \end{aligned}$$

$$\begin{aligned} a + 51 &= 56 \\ a &= 5 \end{aligned}$$

(5, 51)

- 2) Jimmy has a pocketful of quarters and dimes. He has 13 coins which have a total value of \$2.50. How many of each coin does he have?

$$\begin{aligned} \text{# of Coins} & \\ q + d &= 13 \\ \text{Value} & \\ .25q + .10d &= 2.50 \end{aligned}$$

$$\begin{aligned} .25q + .10(13 - q) &= 2.50 \\ .25q + 1.3 - .10q &= 2.50 \\ .15q + 1.3 &= 2.50 \\ .15q &= 1.20 \\ q &= 8 \end{aligned}$$

$$\begin{aligned} d &= 13 - 8 \\ d &= 5 \end{aligned}$$

8 quarters
5 dimes

- 3) There are 3 more dimes than nickels in a sack of coins. The value of the coins is \$8.85. How many nickels are there?

$$\begin{aligned} d &= n + 3 \\ .10d + .05n &= 8.85 \end{aligned}$$

$$\begin{aligned} .10(n + 3) + .05n &= 8.85 \\ .10n + .30 + .05n &= 8.85 \\ .15n + .30 &= 8.85 \\ .15n &= 8.55 \\ n &= 57 \end{aligned}$$

$$\begin{aligned} d &= 57 + 3 \\ d &= 60 \end{aligned}$$

57 nickels
60 dimes

- 4) Two angles are supplementary. The measure of one angle is ten more than three times the other. Find the measure of each angle.

- 5) Rita is older than Megan. The difference in their ages is twelve and the sum of their ages is fifty. How old is Rita?

Finish this worksheet for HW

Due Monday